

AMATEUR RADIO



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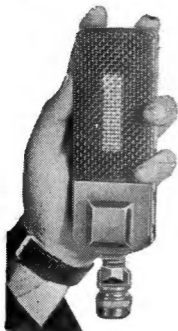
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AMATEUR RADIO

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Vol. 5 No. 7

1st July, 1937

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Magazine Committee:-

Editor—W. R. GRONOW (VK3WG).

Technical Editor—R. H. CUNNINGHAM (VK3ML); Notes—C. SERLE (VK3RX);
Compilation—V. E. MARSHALL (VK3UK); Distribution—E. KILBORN
(VK3KE). Secretary—J. G. MARSLAND (VK3NY).

All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," BOX 2611W, G.P.O., MELBOURNE.

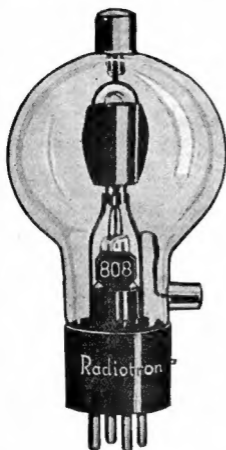
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Editorial



If you read this page you will remember the discussion with the three young Hams in our April issue. Early this week we had another visit from one of them, who came around to further discuss the subject. He said that whilst he agreed with most of our remarks, he felt very definite about one point, and that was that the WIA was letting the newer Hams down. "No, don't interrupt," he said, as we started to protest. "The WIA definitely IS letting us down. All the young Hams need is a little guidance along the right channels. We pay our sub., we attend meetings, we read the Mag., and that about covers all our membership is worth to us." We smiled, for it was strange that this little grouch had as familiar a ring about it as the previous one had. "Now, don't give us an oration on the value of the WIA, because we know all about that. We know we need an Official body to represent us, we know the paramount value of unity in the Amateur ranks, and so on, but that does not alter our opinion." "Very well, but now let us have the floor to say something in defence of the old Institute," we replied. "You say you realise the essential need for a body to act as the mouthpiece of the Ham movement in the country, so we won't belabour that subject. None the less, we are delighted to head it, for too great a percentage of so-called Hams are either too dumb or too selfish to do their share. But from the other angle, honestly, you are entirely wrong. It is not the Institute that is at fault, old man, it is you. You say that you attend meetings and pay your sub. Certainly they are both essentials to membership, but they are only the smallest beginning. One could almost say that what the drilled chassis is to the finished

receiver so your Institute life is to what it could be."

"Let us analyse our organisation. The Institute is composed of fellows from every walk of life, held together by one common bond. Every member pays the same sub. as every other member of the same class. Every full member has the same voting power, and the same opportunity for election to the Council, to sectional executive positions, or any other of the many positions available in the organisation, as his neighbor. In other words, ours is the ideal form of Democratic government. The men who hold the reins of power each year are put there by you and your co-members; they are your fellow Hams. If you are not satisfied with your Division's policy or progress a word to any Councillor will have the matter up for discussion in double quick time. Further, if your ideas are those of the majority, there will not be any difficulty in getting them into operation. Now, here is the point. Some of you chaps, and believe us, many of the older Hams, too, seem to feel that the paying of their sub. each year entitles them to sit back and be waited upon. They seem to confuse the service that goes with the payment of the tariff at an hotel with the payment of their Institute subscription. The former is run to PROVIDE service, and the latter is run by OUR OWN SELVES for OUR OWN edification. Do you see the fundamental difference? Disraeli once said, 'You cannot expect a dividend unless you have invested capital.' Its application in this case is obvious. If you are going to get the maximum out of your membership you must put yourself wholeheartedly into Institute work." "Yes, I can see what you mean," he replied, "but I wouldn't stand a chance if I stood for election to Council. The members don't know me." "Maybe so, but an active participation in Institute affairs will inevitably lead to your election as a Councillor. In any case, that office is only one of many. Do you realise that there are thirty-three positions

(Continued on Page 28)

The "Perfect" Station

PART TWO

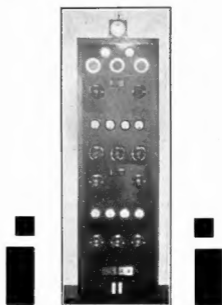
By Vaughan Marshall VK3UK

It will be remembered that last month we discussed antennae in connection with our endeavor to design the "Perfect" station. We naturally turn now to the Transmitter. Our requirements of four band operation, rapid band change, minimum of coil change and decent appearance really sum up the desire of almost every ham and the ways in which this problem have been attacked are without number. In our own case it would not be exaggerating to say that we "got hot" on at least 20 different designs over a period of months only to discard each for a supposed better one. Quite naturally we were swayed in the final choice by the tubes and general gear we had on hand. For tubes we had two 50T's and two of those old stalwarts TBO4/10's available.

In addition to the points required we demanded simplicity in order that we could entirely free the outfit from "bugs." There is nothing worse than to have an urgent schedule and to have to alternately plead and curse the transmitter on the air.

In general design the two extremes for four band operation are four separate transmitters and one transmitter with plug in coils and/or band switching en masse. Four transmitters can be ruled out immediately as being altogether too costly and as we are suspicious of too much band switching because of the introduction of long leads and possible interaction, a compromise between the two seemed essential. Our final decision was for two separate transmitters, one for working on 3.5 mc and 7 mc and the other for 14 mc and 28 mc. All filament plate and bias supply leads were brought out to a 12 pole double throw switch, made up of six DPDT switches on the one base with their arms screwed to an extension, carefully insulated. Thus a flip of the switch puts the power unit to either transmitter. We had had such satisfactory results

in the past with the 53 exciter that it became our natural choice for the CO tube. Of course the Beam type of tube would be the obvious choice today but we remember what we said in the first article, that a transmitter is never out of date provided it will do what is asked of it.



Thus the tube line-up became 53-TBO4/10-50T, and the frequency of operation of each stage is:—

Transmitter 1.			
53	TBO4/10	50T	
3.5 -	3.5	3.5	
3.5 7	7	7	
Transmitter 2.			
53	TBO4/10	50T	
7 14	14	14	
7 14	28	28	

Now for some specific details.

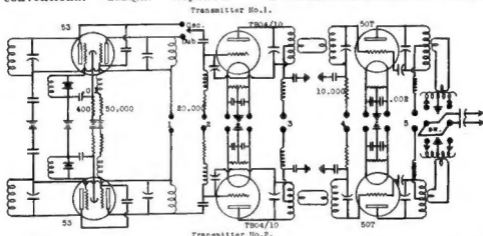
The Rack. It needs no discussion to convince anyone that the relay rack style of design is on its own when neatness, accessibility and economy of space are factors to be considered. Our rack was made up from 3" x 2" stock and stands 6' 6" high, and takes a

standard 19" panel for which the wood is recessed $\frac{1}{2}$ ". The power supply units rest on the base 14" x 22" which stands on sturdy couch castors so that the whole can be swung around easily. The sides of the rack are grooved $\frac{1}{2}$ " x $\frac{1}{2}$ " in the centre to take the power cables up to each section of the transmitter. Each chassis is self supporting on its panel and the power leads plug in along the back so that it is only necessary to pull out the plugs and undo the four screws in the front of the panel, to pull out any unit. As it is possible to get under, over or around each unit, there is hardly any repair that cannot be made without taking out the unit but if it is necessary it is a very simple operation.

Power Supplies. No circuit diagram is shown as the three supplies used are of conventional design. Separate

and battery suits us ideally. The battery gives a constant voltage with or without excitation to the stage and the leak has the inherent advantage that the bias regulates itself in accordance with the available excitation. In the CO the conventional Jones exciter biasing consisting of fixed cathode bias plus a leak in the doubler section is used.

Band Switching. In the exciter unit of the 3.5/7 mc transmitter the switch cutting in or out the grid leak and the Osc/Doubler switch are ganged so that only one motion is needed to switch from one band to the other. Because of our dislike of band switching in coils, for the reasons mentioned above because of the difficulty in getting a switch having low contact resistance and also because of the losses set up in the shorted section of a coil, we in-



supplies are used for each of the three stages. Five switches are brought out to the front panel and are, of course wired ahead of the twelve pole double throw switch mentioned above. The first switches on all filaments, both rectifier and transmitter, the second switches on the HT to the Mercury vapor HV rectifiers (after their filaments have been allowed time to warm up), the third, fourth and fifth switch on, respectively, the HT positive lead to CO, buffer and PA tubes. Without wishing to be guilty of repetition, do remember to check the filament voltages of the tubes at the sockets, especially when using some intermediate switching device such as described.

Bias. There is always a great deal of controversy on the best means of biasing a transmitter but we have always felt that a combination of leak

created the capacity in the tank circuit of buffer and the grid and tank circuits of the PA so that the condensers would cover both 3.5 and 7 mc. We have indulged in a great deal of argument as to whether this method is any more or less efficient than shorting turns on the coils, but we have this to support our selection, we obtain the output we desire with the equipment running well within itself. Our attitude to 28 mc is that we cannot afford any avoidable loss, hence it is felt that the extra minute used in plugging in coils, to obtain the best L-C ratio is well worth while. Thus no provision is made in this transmitter for band switching of coils.

Antenna Coupling. Link coupling to the antenna coupler was the obvious choice in order to reduce losses in the lines from the PA tanks, the one from transmitter 1 being four feet long and

also so that the effective length of the transmission line is the same to each transmitter. Each link is onto a separate antenna coil and a DPDT switch throws either one to the series/parallel condensers and the feeders. An additional advantage is apparent now in the 3.5/7 mc PA tank in that that link does not have to be moved as it would if turns were shorted out. The link is built on to the 14 mc or 28 mc tank and the whole is plugged in as a unit.

Link Coupling is used between the buffer and PA units in each transmitter. Apart from other considerations, the advantage of link coupling in providing a control of excitation is sufficiently great to make its use desirable. After a great deal of experiment we feel a variable link is very helpful in getting those extra grid mills that often make all the difference. The links in our case are mounted on vertical slotted bakelite supports and have a wing nut so that they can be locked in position. The extra trouble compared to the inter-wound link is well worth while.

Keying is done in the cathode of the CO and as the buffer and PA are biased past cut off our requirement of break-in, from the transmitter side, is accomplished. A conventional click and thump filter is used and when correctly adjusted no interference is experienced in the 12 tube RC super even when the gain control is turned hard on.

The cathode side of the key is brought out to the 12 pole double throw switch, so that it can be switched to either transmitter with the power supplies. The other side of the key, of course, is earthed.

The switch poles are connected as follows:—1, Oscillator HT; 2, Buffer Bias; 3, Buffer HT; 4, PA Bias; 5, PA HT.; 6 and 7, Oscillator Filis; 8 and 9, Buffer Filis; 10 and 11, PA Filis; 12 Key, cathode side.

Two small refinements that have nothing to do with the efficiency of the outfit, and yet, at the same time, add to the ease with which it can be operated, are, firstly, an electric clock mounted on the top of the rack, and, secondly, a small 15-watt pilot light mounted just below and under each chassis. Each light is brought

out to miniature switches mounted at the back of the rack, so that any one may be switched on at will. A plug is also provided there for an electric iron, so that if a fault develops in a chassis that does not necessitate its removal, the appropriate light can be switched on so that the trouble can be instantly located, and then any joints soldered without having to juggle a torch or match to see what is being done.

Results. Turning back to our original requirements let us see whether they have been satisfactorily covered. Its appearance enhances rather than detracts from the appearance of the room so no trouble can be imagined on that score. Four band and break-in operation we have already discussed. Minimum of coil change is effectively covered as we only have to change coils for operation on 28 mc. Rapid band change. Transmitter 1 with its bank of crystals on 3.5 mc. is operating on that band. Transmitter 2 with its 7 mc crystals is tuned to 14 mc. Operating on 3.5 mc we desire to go to 7-mc. The flick of the CO switch and twisting buffer tank, PA grid and tank dials to logged positions sets us on 7 mc. 10 seconds at the outside. To 14 mc? Just throw the 12 pole DT power switch, flick the DPDT antenna switch, allow a few seconds for the tubes to warm up and there we are. One is calling CQ on another band almost quicker than it takes to read. There are no trick circuits to play up and provided the ordinary precautions are taken in layout no trouble of any kind should be experienced.

Details of an ordinary constructional nature are beyond the scope of this article, thus our remarks are confined mainly to a general explanation and descriptions of any unusual gadgets.

Next month we will investigate the Receiver, Monitor and Frequency meter sections in our quest for the "perfect" station.

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The King's Birthday Week-end

FIVE-METER TEST.

As mentioned in last issue, 3ML and 3UK arranged to go up to 3RH, Glenorchy, and 3HL, Callawadda, Victoria, for the long week-end, with the objects in view of giving the countrymen a practical demonstration of five-meter gear, of comparing results in perfectly flat country against the hilly country we had always tested in before, and finally to attempt to contact Melbourne, Sydney or Adelaide. According to Ross Hull's experiments, it would seem that the early hours of the morning in the summer time are the best times for DX on this band, but that was no reason why we should sit at home for the next six months. We hope to have a regular set of schedules in smooth running order kept by stations throughout the State before the summer commences. In this matter, also, we would welcome the co-operation of the Ultra-High Frequency Sections of other Divisions, to whom details will be sent from our UHF section as required.

Although no DX contact was made by either station, a great deal of information was gleaned. The superiority of the Bruce antenna established, to our own minds, a definite stimulus given to this work to the countrymen, with the result that there are now four stations in operation. In fact, from every angle the test accomplished much. The countrymen with gear ready for operation now are:—3TD Lubeck, 3RH Glenorchy, 3HL Callawadda, 3OW Coleraine. 3ML used a MOPA transmitter, consisting of a 6L6G quadrupling from 20 mx to 5 mx and an 807 PA. 3UK used an E408N in a stabilised High C circuit. Power at both stations was approximately 35 watts, and both were modulated by a 6C6 feeding 79 in Class B. Both stations used superhet receivers, and also Bruce antennae. Owing to the heavy rain on the Saturday neither station was able to adjust the array fully before the Sunday morning.

It is interesting to note that the signal strength was much weaker

between the two points, ten miles apart, than we have been accustomed to over many times that distance in hilly country. On field days we have often used simple di-poles with three or four watts input to the transmitter, and yet have been able to maintain an R8 signal over 60 odd miles. There is only one gradual slope, probably less than 100 feet high, between Glenorchy and Callawadda, but beam antennae and far higher power gave a signal that rarely rose above R6. On a di-pole the signals were nearly inaudible. 3ML and 3HL found the use of the latter's 20 mx Vee beam, gave a higher field strength reading, and also a stronger signal at 3UK. Both 3ML and 3UK have plans in hand for automatic transmissions on the band with the beams directed according to pre-arranged schedules.

Some interesting sidelights:—

3WG, in Melbourne, heard 3UK during the test on a 5 mx super regen, when we imagine the latter was on 80 mx.

3UK claims one record from the test, being the first station to broadcast a running description of a fire on 5 mx. 3RH's chimney caught fire during a QSO with 3ML!

3ML and 3HL set to work just before midnight on the Sunday to build the latter a super regen receiver!

3ML and 3HL considered the Bruce antenna such an acquisition on the property that they made a deal on the spot and left it there.

The hospitality of 3HL and YF and 3RH and YF was so FB that both 3ML and 3UK tried at some length to think up some subterfuge to turn the three days into three weeks! Both were back at work on Tuesday morning, though.

KING'S BIRTHDAY WEEK-END ON 56 MC.

(By VK3PS.)

There seem to be two items of paramount interest to the average

ham. They are—To try something new and to work DX. Besides these considerations, the organisers of the 56 MC drive on King's Birthday week-end are keen aspirants for the Gadsden Trophy, and until that time practically all their work on this band had been done in conjunction with each other.

Thus it was arranged some time ago that on the Birthday week-end 3ML would go to Callawadda and 3UK to Glenorchy, all complete with the best they could devise in 5-metre gear.

To start with, 3PS visited 3UK, for reasons other than radio, about ten days before zero hour, saw the gear in the course of testing, heard of the three weeks' work till midnight or later every night, and that was the end—gear had to be ready before 12th June!

A visit to 3ML for some Eddystone parts revealed Bob also hard at it in the usual ham manner, till midnight. Incidentally, it is understood that great secrecy was observed between 3ML and 3UK regarding fine details of gear, though general principles were freely discussed.

The appointed day arrived, and in the foggy morning the party set out for the north. On arrival they found that rain had set in. The Melbourne boys got to work in the afternoon, and some at any rate were on watch right through the schedule times. Those heard at 3PS were:—3BQ, 3CP, 3LG, 3LL, 3NB, 3OJ, 3OT, 3PL, 3VH and 3WI, under the control of 3JO.

At 3WI about four "assistants" were on the job. It is a pity that the local QRM interfered with receiving conditions, for 3WI was the strongest metropolitan station, and, being central, should have been able to act as control station and collect reports.

As regards the Callawadda-Glenorchy gang, they contacted on 5 metres about 19.30 on the Saturday.

On Sunday night, 3PS cut short a 5-metre QSO with 3PL to listen for an 80-metre schedule. Although he could not contact 3RH he heard a contact between 3RH and 3OW, and

thus got all the news, which he relayed to 3PL, and any others who were listening.

3OW, at Coleraine, and 3TD, at Lubeck, were also on the job with 56 mc gear. The latter contacted both 3MU and 3UK, but the former could neither hear nor be heard.

At the conclusion of the tests a certain amount of barter went on at 3RH and 3HL, resulting in much 5-metre gear being left at those stations to be used in further attempts to contact Melbourne, Sydney and Adelaide.

The foundation has been laid for serious 5-metre experiment, and before long there may be a network of stations on this band. Although one of the objects of the week-end's work did not materialise, much valuable data has been collected, and, as is usually said of American conventions, "A good time was had by all."

KING'S BIRTHDAY WEEK-END AT 8WL

(By 3JO.)

Saturday afternoon was spent in preparing for activity on Sunday. The transmitter used consists of a 3-stage MOPA circuit with the following line up:—6P6 electron coupled oscillator and doubler, 6L6 doubler, 6L6 power amplifier. The oscillation commences at about 14 mc, and the second harmonic selected in the plate circuit, which is link-coupled to the 6L6 doubler, which in turn provides 56 mc power to excite the 6L6 power amplifier. The power input to the final stage was about 24 watts, and this was plate modulated by means of Class AB 42's as triodes, a system of chokes and condensers being used to obtain the necessary power transfer.

The antenna used is mounted at the top of the mast at 3WI, and is a vertical half wave with a quarter wave stub at the lower end, the end of this stub being fed with a twisted pair. The receiver was a 4-tube superhet with resistance coupled I.F.'s

Signals from 3PS were received at R5/6 through very heavy noise, caused by some outside local disturb-

Amateur Radio

ance. Other contacts were made with 3VH and 3LG, the latter being RMAX, and no trouble to copy through the afore-mentioned noise. This concluded the activity for Saturday, and everything was in readiness for an early start on Sunday.

A start was made at about 0945 in the morning, and our efforts concentrated on contacting the country stations. We were, however, handicapped by the noise (afore-mentioned), which proved to be no respecter of the Sabbath, and, persisted throughout the day, making reception of signals below R6/7 rather difficult.

During the afternoon a shower of rain came over, and the moisture deposited on the spacers of the quarter wave stub caused a large increase in RF current, as indicated in the twisted pair feeders. This, however, did not appear to affect the signal strength at all. In the evening the afore-mentioned noise disappeared, and the last contact of the day was made under excellent conditions. The quality of the tone from all except one of the stations appeared to be quite good, although none of the finer points could be distinguished owing to the noise. The one exception was 3BQ, whose modulation appeared to be distorted, thus reducing the readability by a point or so.

The following stations were worked:—3PS, 3LL, 3OT, 3CP, 3OJ, 3VH, 3BQ, 3MB.

CANBERRA FIVE-METER ACTIVITY.

Of the local ham fraternity, 2GY, 2YN, 2ADM, and on occasions 2RR, are all active on 5 meters, 2AFB having rag chewed with both 2RR, 2YN and 2ADM the same day that he obtained his ticket. From that time until now rag chewing between 2AFB, 2YN, and 2ADM as a three-way has been common with 2GY making an occasional four way.

In regard to the rigs, 2GU is the only high - power crystal-controlled station. As mentioned by 2VN, he has 808's for his final. The remaining stations all use parallel rod oscillators with the exception of 2YN, who puts out unbelievable punch

from a much overloaded 245 as an ultra-audion oscillator. 2GU is also fortunate in having a super that goes down to 5 satisfactorily, all other stations using super regenerators.

VIC. DIVISION.

Note the date of the Annual General Meeting, Wednesday, 14th July.

Correspondence

The Editor,
Amateur Radio,

Dear Sir,

No one likes to see the hams tied down too much. When the new Regulations, prohibiting "Canned Music" on 40 and 20 at night, were brought in, I thought that the CW men might get a chance. Just listen around the band on 40 at night and see if it's possible to work anyone whilst only using the rated 25 watts.

I have become firmly convinced that the only way to have a QSO at night is to either go QHO or shift to 80 mx. Why can't something be done to try and persuade some of the boys to go up to 80 or even 160 for local phone QSO's. If you know any of the crowd in Sydney who are interested in 160 would you be good enough to ask them to write me just as soon as they like.

One of the boys up this way is a bit interested in 160 and we are considering the possibilities of going up there.

The old cry of "BCL QRM" is sure to be raised by many. But if we cause QRM, the BCL's will soon let us know and then we can take steps to prevent it.

To those using MOPA or self-excited rigs, 160 mx is an easy step. Even those using Xtal rigs can easily substitute a grid coil for their XTAL.

If this band were used for fone entirely and also a section of 80 mx band we would not have the QRM as it exists to-day on 40 and even 20 mx.

Right here in this district, a number of the boys, finding dx rather slack, are using 20 mx for local QSO's.

Well I'm going up on to 160mx and all I can say to the boys is "Come up and see me sometime—anytime."

73 Bob, VK2TY.

1937 VK-ZL World Contest

The Contest Rules

Following are the rules of this year's test, and the following two important facts should be specially noted:—

(1) Under the rules one or more operators are allowed from each station.

(2) The log submitted is for the station's operation, and as such the loggings of one or more operators should be incorporated in the contest log submitted.

It will also be noted that there is a break of one week-end in between the Senior and Junior contests.

In drawing up the rules it was the contest committee's wish not to make the event one of "endurance," and we hope that we have met with success.

The support and enthusiasm with which the past VK-ZL International DX Contests have been met from amateurs throughout the world, has convinced both the Executive Committees of the Wireless Institute of Australia, and the New Zealand Association of Radio Transmitters (Inc.) that the Contest is now a looked-for event. This year the Contest is promoted by the New Zealand Association of Radio Transmitters (Inc.), with the co-operation and assistance of the Wireless Institute of Australia.

The Contest Rules.

1. The Contest Committee of the N.Z. A.R.T. (Inc.), will be the sole judges, and their decision on any rules or interpretations of these rules will be binding in the event of any dispute.

2. The nature of the contest requires contacts between the world and VK-ZL.

3. There will be three sections to the contest: (a) Senior, (b) Junior, (c) Receiving.

4. The contest is open to all licensed transmitting and receiving stations in all parts of the world. Unlicensed, ship and expedition stations are not permitted to enter. Financial members only of the W.I.A.

and the N.Z.A.R.T. (Inc.), at the time of the contest, will be eligible for awards in Australia and New Zealand.

5. The Stations competing in the Senior Section of the Contest may use up to the maximum power allowed by the national Radio Regulations. The stations competing in the Junior Section shall use up to a maximum power input to the last stage of the transmitter of 25 watts.

6. All Amateur Frequency Bands may be used.

7. No prior entry is required, but each contestant is to submit a log at the conclusion of the contest showing date, time (GMT), band used, station worked, signal reports exchanged, and points claimed for the QSO. Signal reports must include strength, readability and Tone.

NOTE.—No serial numbers are to be exchanged. Each log submitted is to be concluded showing the total points claimed computed as per Rule 9, together with a declaration as to the power input to the last stage of the transmitter. A contestant may enter for both Senior and Junior Sections, and will submit a separate log for each Section.

8. The Senior Section will be held from 1200 GMT., Saturday, 2nd October, 1937, to 1400 GMT., Sunday, 3rd October, 1937, and will be continued between the same times on the following week-end—9th and 10th October. The Junior Contest will be run from 1200 GMT. Saturday, 23rd October, to 1400 GMT. Sunday, 24th October, and will be concluded between the same times in the following week-end, 30th and 31st October.

9. Scoring for all sections:—

Twelve points will be scored for the first contact with a station in a country other than VK-ZL. Eleven points for the second, ten for the third, and so on, until the twelfth will score one point.

The first twelve contacts will score 78 points, and each additional contact after the twelfth will count one point. In all cases contacts are

irrespective of the band used. This will apply to all countries except England and the United States of America; in these countries twelve or more (as above) contacts will be permitted with stations having the following prefixes:—G2, G5, G6, Scotland, and W1, 2, 3, 4, 5, 6, 7, 8, 9. The points scored by contacts in the above manner will be added together and multiplied by the number of countries worked, which give the final score. Each W and G district will not constitute a separate multiplier.

10. Scoring by competitors beyond VK-ZL: Twelve points will be scored for the first contact with a VK-ZL prefix zone, 11 for the second, 10 for the third, and so on to the twelfth contact, which will count one point. The first twelve contacts with a particular prefix zone will therefore score 78 points. Each additional contact after the twelfth will count one point. This will apply to each VK-ZL prefix zone worked. The points scored in the above manner will be added, and the total multiplied by the number of VK-ZL prefix zones worked, which will give the final.

The Prefix zones are VK 2, 3, 4, 5, 6, 7, 8, 9, and ZL 1, 2, 3, 4.

11. Only one contact with a specific station on each of the bands will be permitted to count during the whole of the contest except on the 28 Mc band, where one contact each week-end will be permitted to count.

12. Entries from VK stations must reach W.I.A., Box 2127L, G.P.O., Sydney, not later than 1st December, 1937. All overseas logs must reach Contest Committee, N.Z.A.R.T. (Inc.), Box 489, Wellington, New Zealand, not later than 31st December, 1937. All entries must reach the Contest Committee, N.Z.A.R.T. (Inc.), Box 489, Wellington, not later than 1st December, 1937.

Awards.

Attractive Certificates will be awarded to the station returning the highest total in each country; to the highest scorer in each of the G and W prefix districts and Canadian Districts.

Receiving Contest.

1. The general rules for the receiving contest are the same as for the transmitting contests, and it is open for any short wave listener in the world.

(Continued on Page 28)

Special Announcement

If you hold the A.O.P.C., Vealls extend valuable concessions to you. Have your name recorded on our Mailing List.....it will pay you.....No cost or obligation, of course.

Send your Verification Card as proof of your bonafides. Address to

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S.1.

3-5 Riversdale Rd., Camberwell, E.6.

Central 3058 (7 lines).

Station Description

(By VK2NQ.)

I suppose there are about two or three hams here in VK who—on very favorable occasions—have heard that wee little sig and sat hushed and intent, only to find it signing VK2NQ. Yes, I am 2NQ, and I—like you other guys—like to boast of my dx. Why, I worked nearly all States of VK in six months here with my rig, and I swell up and feel f.b.—till the light bill arrives!

What's that? Oh! Yes, I'm using a 6L6 metal CC osc. with 400V om. Gives a fair output on its second harmonic from an 80 meter rock, has its own power supply, choke input, filter, and an 83—aren't they pretty!

The osc. is link-coupled to the buffer, which is quite conventional, and utilises an Eimac 35T; this has 1000v anode. Supplied from a large pack which is made up of a thousand a side, 250 MXA tranny, a pair of 5Z3's, a pair of 4 mfd. 2000V working condensers, and a 250 MXA 60 henry (alleged) filter choke.

The Buffer is a vy f.b. doubler, too. Might be handy for this purpose when 40 metres wears out, hi!

This is linked to the final, in which I am using a graphite anode 311. This circuit is also very simple, like 2NQ himself. The anode has only 1000V, also from the same supply as the buffer, but its place does not go red like that of its driver.

Yes, this is link coupled to a series tuned zepp, semi-vertical, about 45 degrees, and sloping down from high up—about 70 feet effect-

ive—at the north end to 27 feet at the south end; it's plane is magnetic north and south.

Input? Well—er—25 watts in the day-time, but between midnite and 6 a.m. full advantage is taken of the stations QRO permit, which is 150 watts.

2NQ is strictly C.W. Will chew it with any licensed chewer any time on 40 mx.

For receiving we have early model detector and one audio, 6C6 and 6L6, with cans, and highly recommended: it has the ability to drag like a fine tooth comb, and plenty of audio, but it is quite useless for fone work without an R.F. stage or two.

Also a Super is in use. It has few, if any, advantages over the usual super. 6D6 RF, 6C6 1st det, 6D6 H.F. osc., 6D6 I.F. 85 2nd det, 1st aud., and a 6C5 audio, 37 b.o. Built into a good aluminium box wid square brass rod in corners, and compartments are provided for different RF stages, as well as an output meter.

Chiefly used for measuring the quantity of local fone QRM. Have worked on 40 mx. Q's, F8's, FU8, ON4, U2's, U9's, J, XU, ZE, ZL, ZS, ZT, ZU, CR7, CR9, VQ8, VS, K7, K6, KA, VE, W's, OM, PK, ET1, ST1, HS1. This should be enough to show that this 40 mx is still able to provide entertainment even to the most fastidious pursuer of this wicked art. However, the DX maiden is as elusive as ever, and to me the chase is ever so thrilling.

MILLFORD RADIO CO.

PHONE: BRUNS. 1247.

TRANSMITTING AND RECEPTION APPARATUS BUILT TO SPECIFICATIONS. ALSO REPAIRS TO POWER TRANSFORMERS, CHOKES, ETC. QUOTATIONS GIVEN.

381 Sydney Road, [opp. Post Office] Brunswick

The VK-ZL 80 MX Fone Contest, 1937

The years contest is a decided improvement on last as it includes interstate QSO's as well and will keep the competition much more busy than last year. The inclusion of a limited section gives those amateurs who can not operate during Broadcasting hours an opportunity to compete amongst themselves as outlined in Rule 13.

The following are the rules:—

1. All entrants to win prizes must be financial members of the W.I.A. if residing in Australia and of the N.Z.A.R.T. (Inc.), if residing in New Zealand. Any station operated by non-members may enter the contest but will not be eligible for awards or prizes.
2. The contest shall be by means of amateur radio telephony transmissions on the 80 metre band only.
3. There shall be three sections of the contest namely.
 1. Transmitting. Unlimited Hours.
 2. Transmitting. Limited Hours.
 3. Receiving.
4. The contest will commence at midnight, Saturday, July 17th (New Zealand Standard Time), and finish at midnight Sunday, August 1st, 1937 (New Zealand Standard Time).
5. Seven days operation only will be allowed, the days of operation not necessarily to be on consecutive days. To come on the air calling for the contest or to send a letter combination as provided in Rule 6 is sufficient in either case to establish operation for that day.

TRANSMITTING SECTION UNLIMITED HOURS.

6. During the course of each two way communication (QSO), each station will exchange QSA, R, reports and exchange a six letter combination. Every log submitted shall contain the following details concerning each QSO. (a) Time. (b) Correct call sign of station worked. (c) QSA, R, reports given and received,

(d) Six letter combination given and received, (e) Points claimed, (f) At end of log total points claimed. The six letter combinations shall be arrived at as follows:—

Every station shall select three letters of the alphabet whose combination shall not be in alphabetical order or form a three letter word (viz) YOU, TOO, BIT, CAT, etc.) and these three letters will form the latter half of every combination sent out by the station. The first three letters will be taken from the last three letters of the immediately preceding QSO.

(Example:—At the beginning of the contest ZL4XX selects the letters ASD and VK2AA the letters TWE. They contact both for their first contacts. ZL4XX send his three letters only not having worked a station before and VK2AA does the same. On ZL4XX's second QSO his letters will become TWEASD and VK2AA's will be ASDTWE.

7. No time limit to be imposed on any QSO.
8. No schedules permitted.
9. No station to be worked more than once.
10. Only one operator permitted per station.
11. All transmissions to be in accordance with the Radio Regulations.
12. Points for each QSO will be claimed as detailed in the following table which is based on the Great Circle distances to the nearest 500 miles.

15	35	20	15	15	15	5	ZL	1	&	2.
15	35	20	15	15	15	ZL	3	&	4.	
5	20	5	5	5	VK	2.				
5	15	5	5	VK	3.					
4.										
10	20	10	VK	4.						
5	15	VK	5.							
20	VK	6.								
VK	7.									

LIMITED HOURS.

13. Competitors desiring to enter for this section will be governed by all

Amateur Radio

the preceding rules but must not commence operation in the contest before 11.15 p.m. (New Zealand Standard Time) if residing in New Zealand, and if residing in Australia or before 11.15 p.m. local standard time of the state in which the competitor is located, on any date, operation is to cease at 7.15 a.m. on the following morning 7.15 a.m. being N.Z. or local standard time as the case may be. Stations contacted need not necessarily be in the limited section of the contest. For the purpose of this section only a days operation as specified in Rule 5 will be computed as being between the hours limiting operation.

14. In submitting their entries for this section, in accordance with the detail required in Rule 6, entrants shall state on the top of the log sheets the section entered for.

RECEIVING SECTION

15. Rules 1 to 12 inclusive, of the preceding rules shall apply to the receiving section substitution as applicable "listening" and "heard" for the words "calling," "worked," and "contacting."

16. A log submitted for this section shall be in the same form as required by Rule 6, with the addition of details as to what licensing district the entrant is residing in. Points shall be claimed as set out in Rule 12.

AWARDS.

17. A trophy will be awarded to the winner of each section (ZL and VK combined). In addition prizes will be awarded to the winning two stations in New Zealand by the N.Z.A.R.T. (Inc.) and the W.I.A. will award two prizes in Australia.
18. Logs from Australian entrants shall be forwarded to the W.I.A. Box 2127L, G.P.O. Sydney and must reach there not later than August 24th 1937. Logs from New Zealand entrants shall be forwarded to the N.Z.A.R.T. (Inc.) Box 489, Wellington C.I., and reach there not later than August 31st, 1937.
19. To each log shall be attached a declaration that the entrant is a

financial member of his national society (if such is the case), that he is the only one to operate the station, that he only operated his station for seven days for the purposes of the test.

THE WORLD FRIENDSHIP SOCIETY OF RADIO AMATEURS.

ZL4CU via VK3EP.

This society was founded by three radio amateurs in April, 1935 and celebrated its second anniversary on April 22nd.

It is a world-wide organization run on entirely voluntary lines, and there are no fees or subscriptions. All that is necessary to become a member is to sign and honour a simple pledge.

Certificate of Membership is supplied free to all accepted applicants.

The American Secretary is Duane Magill (W9DQD) 730 N6th Street, Grand Junction, Colorado, and Dave McEwan (ZL4CU) is Hon. Sec., for New Zealand.

Briefly, the principal objects of the Society are:—

1. To promote and foster the ham spirit of goodwill and friendship either by personal contact or correspondence, for this purpose several letter Budgets have been started.
2. To enrol British, American, European and generally all Amateur Radio experimenters of whatever nationality or colour.
3. To write letters of goodwill to brother hams who are cripples or invalids, and send them occasional letters and magazines.
4. And to ultimately bring about a bond of friendship and brotherhood among Amateurs and others in all parts of the world.

For further information a line to ZL4CU, 20 Mitchell St., Invercargill, N.Z., will bring a letter by return.

Electrical Explorers

Part I.

(By W. R. Gronow, VK3WG.)

When one stops to analyse carefully the wonder of electricity, it is apparent that this medium, which we use so freely to-day, is the outcome of years of exploration and applied thought. First, when we consider the origin of electricity, it becomes clear that although it was apparent in some form or other, the ancients had no real knowledge of its source or control, and as we investigate the subject, names of experimenters who pioneered this wonderful study, begin to increase, until we might name thousands who each contributed his or her small addition to the store of knowledge. Let us then investigate the history of this force which makes the best of hobbies possible, as well as brings comfort and cheer to the world's peoples to-day. The various forms of electricity as they were discovered, understood and applied, lead us up to the present knowledge available to those who to-day must take up the torch to illuminate further wonders. The absolute ignorance of the ancients concerning electricity lead to many amusing misconceptions, and when we consider the real discoveries from time to time we find that a lot of the explorers accidentally hit on truths, sometimes without actually knowing how or why, frequently leaving their greatest finds to others to apply—so watch out you don't discover some fundamental and leave it to posterity to develop. The compass used by mariners for thousands of years constituted, as an unknown force, the earliest subject for scientific study, which gradually led searchers to discover that a difference existed between this form of magnetic attraction to that force which attracted other bodies when rubbed briskly, so a knowledge of frictional electricity was born.

Dr. Gilbert, of Queen Elizabeth's court, one of the early experimenters in this subject, who saw the light, he it was who applied the term "electric" to his studies, and left for posterity his electroscope made

out of a straw, pivoted so that it could indicate the approach of a charged body. This instrument and the compass were the beginning of the art. The magnet, by the way, derived its name from Magnes, a shepherd, who was supposed to find the iron nails in his shoes sticking to a certain stone, which was called by his name, the magnet.

These early experimenters thought to use the magnet to attract another magnet, and so convey thought, so communication over distances was one of their schemes. Of course, it didn't work, but it kept them thinking. Gradually the atmosphere cleared, until we find Von Guericke, of Magdeburg, spinning his globe of sulphur in 1672 to produce a charge. He is was who found that the presence of a lighted candle discharged a feather which his globe had repelled, sending it back to the globe again—electrons up to their tricks again. Hauksbee improved the sulphur globe with glass. Wimshurst made the later and most successful job of this kind of equipment. Von Guericke managed to convey his charges along a silk conductor, and he found that his globe would produce sparks when discharged suddenly—another early spark transmitter, if he had only known it. Stephen Gray, 1720, an inmate of the poorhouse, found that the electric effect could flow through certain bodies in contact, so a conductor came into being. Unfortunately, he tried silk thread, and not metal. During his experiments with conductors he found that the charge leaked off a conductor when supported on metal rods—naturally insulators came into the picture at this stage.

Charles Dufay furthered this experimentation of conductors and insulators by finding that metals supported on certain insulating substances conducted best of all—we're getting on to 1745.

Musschenbrook, in Leyden, attempted to collect this interesting force in a glass vessel full of water, which, as it was held in one hand, the affair charged up, formed a condenser, and he got the shock of his life!

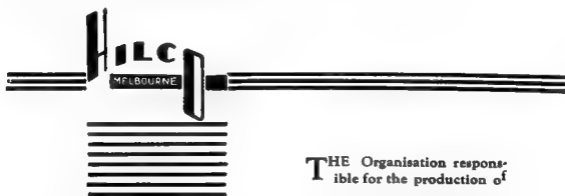
Nollet, the Frenchman, attached to the French Court, showed the effect of a discharge of this kind by passing it through a line of soldiers holding hands; they got it hot, and as each jumped at the same time he concluded that electricity was instantaneous in its action—painful, but true. We now have the conductor, insulator, condenser, and electric circuit in their early forms. Gradually the water and hand were dropped and metal plates insulated by the glass were used. So the dielectric came to be studied, and insulators were developed.

Benjamin Franklin, in America, also had very similar investigations, and discoveries to his credit, including a theory concerning positive and negatively charged bodies. Of course, up to now the only electricity

known was static electricity. Power was unknown in its present form. It was Franklin who noticed the similarity between electricity and lightning, taking personal risks with his kite in the process. By this time the study of electricity had quite a few adherents in England, Europe and America, each school with its particular theories—some right, most of them fantastic, but all of them leading onward. The Frenchmen and Russians were testing Franklin's theory about lightning with conductors, and some fatal accidents resulted.

Franz Ulrich Aepinus and Johann Karl Wilcke found that the glass in a condenser could be replaced by air as a dielectric, and also found that the charge was on the outside of the charged body. Priestley, Cavendish, and Maxwell, about 1780, also elaborated the latter contention, but Coulomb got the credit for experimentally proving the point, hence the unit of electrical quantity—the coulomb.

(to be Continued)



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VK3RJ QSL Manager.

Cards relating to QSOS as far back as 1933 have come to hand from Maurice Brown VK2OR—Have you become conscience stricken Morrie after this there is still a chance that FM8IH will do the right thing.

We can expect big developments in crystals at an early date as Roy VK7NG is conducting several experiments using petrified wood as an XTAL oscillator.

Jules Steiger—The QSL manager for W1 District is keen to get a card from the following VKS who so far have not obliged—VK 2QE, 2ACV, JX, 3MK, 5RD and 6FO. Jules QRA is J. Steiger W1BGY 35 Call Street, Willimansett Mass, USA.

VK3 is glad to welcome J. Coulter EXVK5MC—His new call sign is VK3MV and he will be a great asset to the Victorian ranks.

Ferguson EXVK2BP will be located with a geographical survey party in Central Australia between July and August—The call sign allotted to the party's Xmitter is VLU and the FREQ utilised will be 6680KC—All hams are requested to look out for him between 8 and 9 p.m. daily VK5 time.

The reseau des emetteurs francais (R.E.F.) request all QSL managers and others to ignore communications from a bootleg organisation recently founded in France and which was mentioned in this column last month the R.E.F. advise that they will still continue with their good work as in the past.

R.E.F. advise that QSLs for Morocco will receive more expeditious treatment by forwarding to A AEM BP50 Casablanca Morocco.

E16J W Howard QSL manager for E1 whose QRA is 23 South William St., Dublin, writes. "VK2 6 and 7 cards not coming through to E1. Shake them up especially the 6 and 7 as they are scarce here."

The R.E.F. intend holding a big amateur effort during the currency of the Universal Exposition which is being held in Paris at the present time. The amateur festivities culminate with a banquet on June 27.

Cards are on hand for the following:—VK3, AD, AP, AT, AX, BJ, BL, BS, BV, BX, CA, CM, CS, CU, CX, DJ, DS, EH, EO, FF, FK, FM, FS, FZ, GO, GP, HE, IL, JE, JR, JV, KO, KP, KY, LL, LT, NA, NG, NI, NT, OI, PA, PC, PH, PN, PY, QK, QX, RE, RD, RM, RQ RT, RW, RL, SA, SB, SG, ST, SV, TG, TQ, TZ, VK, WB, XD, XG, XU, XZ, YF, YG, YS, ZB, ZC, ZG, ZL, ZO, ZW, ZM, Duran Heaver Howard.

In spite of the fact that many of the modern transmitters described in handbooks and manuals show series fed H.T. circuits minus R.F. chokes in the leads, I have found and proved, in various exciter units, that the efficiency can be greatly increased by their use. As a matter of fact, one particular 53-53 band switched unit was found to be particularly hard to get going until all grid and plate leads were effectively choked. Rather too little attention seems to be paid to the keeping of RF out of the power supply these days, mainly because manuals imply that "it is not done" to use chokes. They are not only necessary, but CRITICAL. Not all chokes work well either. The main essentials are, of course, inductance, self capacity, low dielectric losses, and resistance. You will find the desired balance in the Eddystone RF chokes anywhere from 5 to 2000 metres. The two popular honeycomb types are illustrated herewith, and can be used as plate or grid chokes from 5 to 180 metres.



No. 1011. 2.5-10 metres.
Price, 1/10.



No. 1022. 5-180 metres. 250 mills.
Price 3/9.

For filtering I.F. or similar stages, No. 1006 type, with a wave coverage of 12.5 to 1000 metres, is ideal. Single hole mounting through the D.L.9 former permits easy assembly. Self capacity, 2.4 m.mfd. with an inductance of 17.9 millihenries and a DC resistance of 60 ohms. There are seven different chokes for seven different purposes in the Eddystone range, and full details are given in the illustrated catalogues obtainable from any of the following distributors:—

P. & L. WIRELESS LTD., Hardware St., Melbourne.

FLINDERS RADIO, 102 Flinders St., Adelaide.

W. & G. GENDERS PTY. LTD., Cameron St., Launceston (and Hobart).

Or from the Australian Representative:

R. H. CUNNINGHAM,

3ML, 397 HIGH ST. GLEN IRIS
PHONE U 9028 AFTER 6P M.

28 and 56 M.C. Notes

A. Pritchard VK3CP

European signals have broken thru after a lull of two months—although VK2GU has been working them most evenings, the only difference being that and at 3BQ on June 5th at 6.15 and 6.50 p.m. respectively. 3BQ hrd YR5YN signals are weaker. G6DH was qso hr at 2.15 p.m. on the 8th June, which is the earliest time that the Europeans have been hrd here, in VK G6DH is r4 most evenings now at app. 6.15 p.m.; he reported a qso with YU2CD on 56mc showing good results with DX on 5. ZL4FW has an interesting outfit on 5; also ZL1JD is building a xtal rig with 100 w to the final on 5. ZL4FW has a schedule with W9CLH each Saturday at 1.30 p.m. (our time). The w has been heard often on the West Coast and ZL4FW hopes to hear him on a 10 tube 56 mc super het reporting via W9Til on 10 mx VK's 3YP BQ and CP are also on the look out!

3BQ and 3YP have re-built the RF portion of their supers, showing a wonderful improvement on 5 mx. ZL4FW's outfit has a pair of 53's and 80 xtal to 10 mx, 6L6G doub 5 mx 807 buff on 10 and 5, 50T final with 100 watts input; the modulator has a cond mike and 6L6 class B; antenna is half wave vert with quarter wave stub feed. The most outstanding sig from the States is W6JJU who has a schedule with 3YP each Sat. morning. The antenna has $4\frac{1}{2}$ waves on each leg of a diamond, on 20 mx fed directly by an 800 ohm line. This antenna has a 16 deg. vertical angle of radiation. Jerry's outfit has a 53 osc, 40 xtal, 6L6 Push P doub 10—100 TH buff, and HF200 final with 400 watts input, modulated by class B Gammitrons. Another excellent phone is W9YHQ who has a V beam with 7 waves over all, fed from PPT20's final. The Hungarian DX contest gave us no sigs on 10 mx; in fact the only HA (F) sigs ever hrd on 10 are HAF3D and HAF8C. The Africans are beginning to be hrd each Sunday from 5 till 7 p.m. and ZE1JU is the most consistent; his rig has 59 trf tet 40 xtal, 59 doub 46's PP and 210 PP final, 40 watts input;

antenna is a 67 ft zepp. VK2GU has re-designed his beams with noticeable improvements in reports. His H type horizontal beams have 17 ft 1 inch for each of the 4 half wave sections; the $\frac{1}{2}$ wve section connecting the upper 2, $\frac{1}{2}$ wvs, to the lower 2, is 17 feet 7 inches and below that again the $\frac{1}{2}$ wave stubb, 8ft 6 inches long, with the feeders 44 inches from the shorting bar. VK3BW has re-built his class B mod and Archie has excellent phone. This mod. has a 6F6, 6C6, class ab 46's class B 210's giving 60 watts of audio!! Also since adding the Q bars in the feeders, his sigs have increased 2 points hr. The W stations are o.k. often at 7 a.m. and W6GUQ is r7 at that time—W6MFR was hrd qso a new South American, LU5FG—There are good qso's from K6 stns. up to 6 p.m.—K8LCV (always r9 K6MVV, 6MVX, 6OQE, and 6NEK, 6KMB. The Japs haven't been hrd for many weeks now although harmonics from KQI, PLF, TDC, TDR, TDI, TDH, JNJ and JNB have some punch between 5 and 7 p.m. when we usually hr J-stns.

Sat. 12th was N.G. for the W9CLH five mx test. VK3UK—3ML had a portable rig at 3RH—3HL during the King's Birthday week-end. UK's gear consisted of an E408N in a stabilised HI-C circuit ML used a 6L6G E.C. Tri-tet from 20 to five driving an 807 to 40 watts input. Class B mod was used in both cases, 3WI at the Institute rooms (3JO's outfit) on the Sunday put in R max signals all over the suburbs and QSO'd 3BQ, 3CP, 3OJ, 3LL, 3VH, 3OT and 3PS showing many on the job. 3ML-UK were not heard around Melbourne nor our sigs heard by them—we'll keep on trying—Hi!!

The support given to the N.S.W. Division's technical article contest prize has not been up to expectations so far. There are only a couple of months left to send in entries. Better get busy right away.

Divisional Notes

To ensure insertion all copy must be in the hands of the Editor
not later than the 18th of the month preceding publication.

N.S.W. Division

W. G. Ryan, Secretary, VK2TI,
Box 1734 JJ, G.P.O., Sydney.

Country Zone Officers.

Zone 1 (Far West).—J. Perooz,
VK2PE, Hope Street, Bourke.

Zone 2 (North-West).—H. Hutton,
VK2HV, Byron Street, Inverell.

Zone 3 (North Coast).—R. J.
Berry, VK2NY, 54 Bacon Street,
Grafton.

Zone 4 (Hunter River and Coal-
fields).—R. W. Best, VK2TY, 57 Hunter
Street, Newcastle.

Zone 5 (South Coast and South-
West).—R. Ross, VK2IG, 673 David
Street, Albury.

GENERAL MEETING.

At the general meeting held on
20th May the Senior Radio Inspec-
tor (W. T. S. Crawford, Esq.) pre-
sented the prizes won at the recent
Amateur and Short-wave Exhibition,
and also the trophy presented by him
for amateur telegraph operating.

In making the latter presentation
to VK2RA, Mr. Crawford referred
to the high standard of operating
shown by the contestants, especially
in the transmitting section. He ex-
pressed himself as being pleased
with the interest shown in the con-
test, and at the same time made an
appeal to those present to take a
greater interest in CW operations,
as being more reliable over long
distances and under bad conditions,
requiring less transmitting gear,
causing less interference, and pro-
viding a training-ground for opera-
tors for emergencies.

Preparatory to presenting the
prizes won at the Exhibition, Mr.
Crawford congratulated the Divi-
sion on such a successful undertak-

ing, and commented on the excel-
lence of the display and of the com-
petitive exhibits. The interest taken
by him in the Exhibition was shown
by his references to several indi-
vidual items of gear during the pre-
sentations of prizes.

A full list of prize winners was
published in last month's issue.

In a few general remarks, Mr.
Crawford referred to the good feel-
ing which exists between his Depart-
ment and the Institute, and stressed
the importance of amateurs dealing
with the Department through the
Institute or similar organisation, as
it was very difficult to deal with
individuals, but where a large num-
ber of men belonged to an organisa-
tion the wishes of that body would
command respect, and also the
Department could reach those men
through a single channel. He also
mentioned the work done by the
Vigilance Committees, and com-
mented on the improved standard
of transmissions, at the same time
asking that care be exercised as to
the conduct of the station when
on telephony, on account of the
general public interest in amateur
transmissions.

In conclusion, Mr. Crawford
thanked the Division for affording
him the opportunity of being pre-
sent at the meeting.

The Chairman (VK2HP) and
others then spoke in high terms
of the personal regard which the
amateurs have for Mr. Crawford,
and a vote of thanks was carried
with acclamation.

Among those present was Miss
Longley (VK6YL), who spoke in-
terestingly on the subject of Ama-
teru activities in W.A., and also
described briefly her trip through
the eastern States.

The meeting terminated after men-
tion was made of the forthcoming
5-metre field day, details of which
appear elsewhere.

Amateur Radio

ZONE 4 NOTES.

(By VK2TY.)

Having only just taken on the job of Zone Officer, I have not had time to check up on many of the boys in this District.

The Maitland Gang seem to be rather quiet of late, and unless some of them drop me a line occasionally, their fame will not be spread across these pages.

What about it, 2GE?

Cessnock and the Coalfields area shows a little more promise.

2DG works them fairly consistently. About that fone, Keith?

2YL is another consistent DX hound around those parts.

Coming closer to home, 2OS, from Sunny Thornton, is putting out a bit of fone lately. What's the rig these days, Neville?

In Newcastle and District, there is not a great deal doing.

In New Lambton we find 2AEZ (Sec. of N.A.R.C.) trying fone on 20 mx.

2ZC, of Adamstown, is busy finding out just how many things can be done with his Cathode Ray Oscilloscope. Jim gave a fine demonstration with it at the Club on 10/6/37.

2ZW is rather QRL these days.

2BZ is seeing if he can blast the Ether (or himself) with a 2IIE in the final.

New ham here (VK2AGD, of Mayfield).

A Mr. Jones, of Boolaroo, has just passed his ticket.

ZONE 5 NOTES.

(By VK2IG.)

It seems conditions were not so good for the HA contest, and in this zone few contacts were made. Some afternoons HA signals were up to R8, but hard to raise. A couple were raised at about 10.30 p.m., and it appeared conditions were reverting to last winter's, but so far have gone off again. K7's are now easy on 20 metres, together with VE's, with Europe getting harder to land.

2OJ completely remodelled his speech department, and it is now working fb. Dope on the line-up next issue.

2QE now has 6L6G, so will soon be remodelling also.

2EU also on fone on forty with new rig, but still testing.

2AFD having worries with power supplies, and also busy.

Old 2QD is now up and about again after a motor cycle accident.

2IG off the air until rx properly finished.

WAVERLEY RADIO CLUB.

The following office-bearers were elected at the recent half-yearly election:—President, G. Wells; Vice-president, M. Lusby (2WN); Secretary, H. Garland; Treasurer, A. West; Assistant Secretary and Treasurer, E. Johnson (2AFZ); Publicity Officer and W.I.A. Delegate, J. Howes (2ABS).

The Club can look back with some satisfaction on the 1937 W.I.A. Exhibition, as five prizes in all were won by Club members, including the "Wireless Weekly" Cup, which was won by the Club's stand.

A comprehensive series of lectures has been drawn up for the forthcoming two months, embracing a variety of subjects, and these are being anxiously awaited.

Visitors are always welcomed at the Club rooms, "Almont," 13 Macpherson Street, Waverley, and meetings are held every Tuesday night, at 8 p.m.

2AFG is using a 59 E.C. osc. driving an ancient D404 in the P.A., but has discovered that he gets more output from his osc. than from the P.A.! Why not try that AL3, Jack?

2AFZ is all smiles again now. An open circuit filament C.T. resistance was responsible for that R9 hum on his fone.

2FJ puts out good quality fone on 20 metres, using a nice new crystal mike.

2EG still chasing the elusive dx on 20-metre CU, and sure tickles up the ether around Randwick way with his 800.

2BV, the Club's xmtr, has been very active on 7 mc CW recently, and has some DX to its credit.

2ADI got an R6 report from his first W the other day. Is rebuilding rig, and will use 47 C.O., 46 Buff, and PP 6P6's in final.

2TN gets out well with an indoor aerial on the xmtr!

LAKEMBA RADIO CLUB— VK2LR.

(By 2DL.)

A new scheme recently introduced by the Club, whereby a regular official Club visit is paid to a certain

transmitting member's station, is proving highly successful. Various members volunteer to throw open their shacks for inspection by fellow members on certain nights. Since the Club now has 43 transmitting members located in the various surrounding suburbs, it is quite obvious that many have not yet inspected each other's apparatus, and thus this scheme provides an excellent opportunity of doing so, offering new ideas to the individual in the layout of his own gear.

Mr. D. Broadley was recently successful in obtaining his license, and may be heard nightly signing VK2AFU, VK2VW and VK2ACS were recently accepted as new members of the Club.

Chas. Luckman, 2JT, has been observed on numerous occasions making careful tests on the new trolley buses which are being put into operation on the Kogarah-Sans Souci run. It is understood that these electric buses created absolutely no electrical interference. Five-metre activity appears to be at a standstill as far as members are concerned, but it is anticipated that the band will be more popular after the winter months.

- ULTRA HIGH FREQUENCY SECTION. VK2VN.

During the past month all the UHF men have been preparing and constructing gear for the Field Day on 27th and when this appears in print we hope something worth while will have been learnt about the 56mc band. Quite a lot of trouble has been taken to ensure everything running smoothly.

For the reason above mentioned, activities have been rather restricted so perhaps it would be as well to mention briefly what has been done in the way of construction.

2MQ having completed his multi-stage crystal controlled transmitter using PP801's in the final is now concentrating on a multi-tube superhet.

2LZ not satisfied with his past efforts has just finished an 8 tube super, specially constructed for 56mc. Power supply and speaker are mounted in the chassis and tubes and condensers are so arranged that grid leads are not more than an inch long. According to reports this receiver is the ultimate in efficiency. Con recently reconstructed

his transmitter which now looks very trim and seems now to be even. PP800's are still used in the final, modulated by a 212D.

2RA of Crawford Cup fame is now a very enthusiastic U.H.F. fan and is building up quite a nice outfit.

2ZC is another who likes to see plenty of RF floating around, hence the reason for using PP800's. So far he has only contacted stations in the Newcastle districts.

When talking of R.F. and Q.R.O. brings to mind 2GU at Canberra, who is now installing PP100 T.H.'s modulated by a pair of 808's. 2GU by the way is the station into which flow all the ZL harmonics from 10 meters.

2VN now has PP802's driven by a 6L6 electron coupled triode giving quite good output.

2UV uses PP6L6's while 2NO still has his pair of 35T's after a 6L6 driving an 802 buffer.

From the foregoing remarks, it can be seen that the general standard of equipment has shown a vast improvement during the past few months.

Victorian Division

VK3 PHONE SECTION NOTES. by J. R. Kling VK3JB

The May meeting of this section was held on Tuesday, 25th at the Institute Rooms at 8 p.m.

Mr. Thompson 3TH was in the chair, as our acting chairman Mr. Doyle 3CR who has been very ill came along later and assisted the acting chairman.

A letter was received from Mr. Gerald Lahiff tendering his resignation from the allocations committee, which was received with regret.

As other members of the allocations committee other than Mr. Lahiff were not present and the order of merit was not to hand, 3FL moved and 3CR seconded that the order of merit for the month of April be taken again for the month of May, this was carried unanimously.

3OY and 3OV resigned their positions on the band, leaving a balance now on the band of fourteen Metropolitan Stations. After a short talk on the whole position of the gang on the publicity band by Mr. Thompson, the allocations and crystals were given out.

Amateur Radio

Then the members of the UHF Section who so kindly came along to give us a lecture on 56mc doings took control, and it certainly was very interesting for all those interested, and some of the Phone hounds should show up on 5 meters very soon.

At the conclusion of the lecture the meeting closed at 10.45 p.m.

WESTERN DISTRICT NOTES.

3HG.

3SC is a new ham in Camperdown making the fifth in the town.

3GQ active on 14 mc with the YF on the mike.

3GC also on 14 mc occasionally.

3KX still working DX as of old.

3KL has moved from Avoca to Horsham.

3QM is old 5CH now located in Belmont.

3CK is considering a vibrator or genemotor power supply in place of the old batteries. Has adjusted his antenna with beneficial results.

3TD co-operated with 3RH and 3HL during their 56 mc tests recently. Is operator at 3LK broadcast station.

3AC is reported to have dropped 230 meters in favor of the higher frequencies.

3GW heard on 3.5 mc now and then but mostly on reserve work.

3WW active on 3.5 and 7 mc.

3XI has come to life once again, this time on 14 mc using three 6L6's but is not satisfied with his antenna.

3OW interested in 56 mc and is testing out gear.

3HG installing a 6L6G and a V beam antenna is able to work W on phone, also lots of DX on CW.

QUEENSLAND DIVISION

As it is some months since VK4 notes appeared in these columns a brief outline of the more important happenings at the Division's Headquarters will be given for the benefit of Country members. Since the last Annual meeting 40L, due to business reasons, was forced to tender his resignation as secretary. Thanks was expressed by all for the splendid work done by Frank during his term of office. Mr. R. Thor-

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ley, 4RT, succeeded 4OL as secretary and, if all the co-operation promised is forthcoming, the Division can look forward to another successful year. Other new faces on the Council are 4UR, 4HR and 4AB, the positions filled being Amateur Radio Representative, Country Librarian and Publicity Officer respectively.

INTER ZONE COMPETITION.

All entries are now to hand for the VK4 Inter-Zone Competition held during the last week-end in May. Some 20 members participated in the contest and all declared it a huge success. After points had been allotted the scores were as follow:

FONE.		C.W.	
4TY	.. 508 pts	4NO	.. 267 pts
4LX	.. 328 "	4RH	.. 192 "
4UX	.. 321 "	4EI	.. 130 "
4ES	.. 300 "	4AW	.. 38 "
4AW	.. 51 "	4RT	.. 22 "
4XN	.. 26 "	4GA	.. 5 "
		4HR	.. 2 "

Congratulations to 4TY and 4NO for their fine performances. Among others who took part were 4SA, 4SD, 4GK, 4RC, 4FN, 4DY, 4LK etc.

HIGH FREQUENCY FIELD DAY.

By the time this appears in print it is hoped that Sunday, 27th June, will be a red letter day for VK4 56 mc enthusiasts. On this date a field day has been arranged so that our 5 mx gang will have the chance to collaborate with VK2 stations in an attempt to establish a new 56 mc record. Two parties will be located at strategic points with outdoor equipment and several have signified their intention of taking part in the test from their home. QRA's with high power gear.

ZONE MANAGERS' REPORTS.

Zone 5. Mgr. 4EI, Townsville Reports LK now connected to mains, 6L6G-46's in P.A. Petrol driven 240 volt alternator installed at GA's. GE has one eye on study and the other on lookout for Ipswich boys. WG, new member, wants VK4 qso's EI complains of few VK4 stations on C.W.

Zone 4. Mgr. 4UX, Theodore. No's sigs put B.C.L's sets out of action-hi. Do, the tennis champ, has been spending a bit of time on 7mc lately. Every one wants to know what's happened to the Longreach boys, RQ and WH?

Zone 3. Mgr. 4XN, Dalby. GG is making a reputation for himself on 20 metre DX 'fone. CU and AF, Clifton, are trying to contact 4XN on 56 mc. KZ expects to have a new rig on 3.5 mc. shortly. YA has gone to VIS—best luck in new QRA om. XN hasn't been very active lately.

Zone 2. Mgr. 4TY, Kingaroy. CB still on 200 mx with good quality fone. BB's activity represents one sked weekly with 4GK and 2LZ, that is when Con puts in an appearance. ES is using 42's throughout the rig and his fone is f.b.

Country members are requested to submit monthly reports to their respective Zone Managers and thereby assist in keeping these notes as interesting and informative as possible.

Activity on the air seems to be at a low ebb among the VIB gang. RF, EL, UR, HR, SD, JX, and UL are the only really active ones. Poor conditions are perhaps to blame. 20 mx is showing those whimsical qualities for which it was noted years ago; 10 mx is deserted except for a few weak W 'fone stations, and 40 mx is good only for inter-state QSO's. Let's hope that the "Divinity" who regulates our DX periods sees to it that conditions improve before the VK-ZL World DX scramble.

South Australian Division

by VK5KL

Mr. Jack Coulter has been transferred to Melbourne and Mr. Bill Walker (VK5WW) is the new secretary. All those present at the general meeting on June 9th, enjoyed the excellent lecture and demonstration given by Mr. R. Buckerfield (VK5DA) on modern BCL superhetrodyne receivers.

The T.D.S. members have commenced a series of sessions operating on 40 metres at 2 p.m. each Sunday. During these transmissions W.I.A. news and activities will be given this will be beneficial to all city as well as country members.

Every Sunday night at 10.30 p.m. on the 80 metre band listen to "The Technical Discussion Group." The first session was held on Sunday, 13th June, members were VK5FM, 5MD, 5LD and 5WJ. The subject was super-

hetrodyne receivers and some very interesting points were explained by those co-operating. Results of the DJDC contest held last August have come to hand. VK5 Leaders were 5GW, 5LD, 5RX, 5KL, 5LY, 5FM and 5BY.

Unfortunately weather conditions in VK5 did not permit extensive co-operation by the local chaps on 5 metres during the recent attempt for a record by the VK3's on the week-end June, 12th to 14th.

COUNTRY NOTES.

By VK5PN

VK5FB:—Frank, I believe, is settling down in the old home town—Wilmington.

VK5GW:—George, formerly of Adelaide has been for some time at Naracoorte. He is turning that town into a real live A.C. area.

VK5LG:—We very seldom hear from Keith these days; just an occasional rap on the knuckles when we forget to acknowledge receipt of letters, subs-etc.

VK5RE:—The voice of Renmark; "Where the Murray Croons a Lullaby" was in the City recently and believe me he was a busy man, visiting the local shacks, buying radio gear etc.

VK5WG:—One of the really good fone stations. Wally is usually to be heard at R8/9 in the City during week-ends. Guess he stirs things up in Port Pirie.

VK5PB:—Another of the Naracoorte gang. Have not heard much of "PB" lately. He seems to spend most of his spare moments in the 5XR shack.

VK5NW:—Our latest Country member Mr. R. H. Bailey of Mitchell St., Crystal Brook. The Institute extends a very hearty welcome to 5NW with best wishes for DX and "things in general." How about letting us know all about your station and activities O.M.

VK5AT:—Now I wonder when 5AT is on the air; I have never yet heard him. This much I can tell you about 5AT; when he was living in the City he was a member of the Sth. Aust. Divn. Council; and then, as now was an enthusiastic worker in the interests of Amateur Radio. Now I want to make an appeal to you chappies for articles, station descriptions etc. We want S.A. to figure more prominently in the

"Magazine." Particularly we would like you to pass on to your fellow Country Amateur worth-while tips for getting best results out of low-power rigs. Each one of you will have, at some time or other, had to face up to some problem peculiar to Country-station conditions. You have had to be an experimenter in the real sense of the word. You can help the other chap, and he can help you, so how about it?

Tasmanian Division

Via Radio VK3MR.

The annual meeting of this division was held at the club rooms on the 5th of June. The election of officers were as follows.

Council:—F. W. Medhurst (VK7AH) T. Connor (VK7CT), C. F. Johnson (VK7AR), H. Moorhouse (VK7HM), J. C. Batchler (VK7JB), L. C. Clark (VK7CK), L. K. Valentine (VK7KV), A. E. Allen (VK7PA) and (VK7AB).

President, VK7AH. Secretary, VK7HM. Assistant Secretary, VK7KV. Treasurer, VK7HM. Traffic Manager, VK7DH. Deputy Tfc stn VK7JB, QSL bureau VK7JB. Magazine notes VK7KV. Magazine distribution, VK7YL.

After the meeting the company retired to the Ship Hotel where a dinner was held and it was voted a great success. On Monday the visitors accompanied by 7YL, 7HM and 7JB, paid a visit to the "Pinnacle" Mount Wellington, via the new road. An enjoyable time was spent in the snow and the visitors returned to north in the PM.

MEMBERS ACTIVITIES.

VK7YL has migrated up to 80 mx. Having trouble with audio feed back on 20 mx fone. Reports conditions crook on latter band. Try 10mx Joy!

VK7KV working duplex fone on 5 mx 7KQ also on 5 mx consistently.

VK7CT not active at present QYL! "I say Terry, was that lemonade you were drinking at the dinner ??

VK7JH transferred to Waddamana and is taking a low power transmitter with him. Sorry you couldn't attend the dinner Jack.

VK7BJ.—On 40 mx and 20 with a 6A6 co, and a TCO4/10 modulated by a 6L6. That was a snappy edition on the pillion of the mobike, Joe.

(Continued on Page 28)

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- - - FOR 1937

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Amateur Radiotelephony, 1937 (Frank C. Jones)	5/-	4d.
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Antenna Handbook, 1937 (Frank C. Jones)	3/6	3d.
The "Radio" Antenna Handbook	4/-	4d.
R.C.A. Receiving Tube Manual (1937)	1/6	3d.
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Communication Networks—Vol. II. (Gullickson)	59/6	1/-
Fundamentals of Radio (R. R. Ramsay)	29/6	10d.
Photoelectric Cells (Campbell & Ritchie)	18/6	7d.
Theory of Thermionic Vacuum Tubes	49/6	1/-
Transmission Networks and Wave Filters (T. E. Shea)	49/6	10d.
Elements of Loud Speaker Practice	9/6	6d.
Radio Frequency Electrical Measurements (Brown)	29/6	10d.
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R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

Second District, N.S.W.—A. G. Henry, Clareville Avenue, Sandringham (VK2ZK).

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (VK3UK).

Fourth District, Queensland—A. E. Walz, Sandgate Road, Nundah (VK4AW).

Fifth District, South Australia—F. M. Gray, 52 Ormond Grove, Toorak Gardens (VK5SU).

Sixth District, West Australia—J. Mead, 111 Gerrard St., East Victoria Park, W.A. (VK6LJ).

Seventh District, Tasmania—R. Cannon, Goldie Street, Wynyard (VK7RC).

THIRD DISTRICT.

(VK3UK—3Z1.)

The main item of interest this month was the trip of 3Z1 and 1A1 to the country for the Five-Meter test described in this issue. 1A1 stayed with 3C3 and 3Z1 with 3F9, and the wonderful hospitality extended to both of us made the week-end one of the most enjoyable we have ever had. Whilst no records were broken, a great deal of information was unearthed that will be of great help in future tests. 3B5, at Coleraine, had built special gear for the test, but although frequent attempts were made no contact was the job in Melbourne, and the former was able to make many local contacts with his new five-meter gear. One important aspect is that a definite stimulus to work on the band has been the result, and 3C3, 3B5, and 3F9 can be relied upon to be ready for any tests in the effort to get through from Melbourne. 3Z1 and 1A1 will have beams permanently on those places, and it is hoped to run a definite series of schedules until contact is established.

VMC2 are the first section to get under weigh with R/T schedules, but the others won't be far behind, as most of the country men use

phone on 3.5 mc.

3B5 worked with 3Z1 during the test week-end, always on phone, and the quality was excellent throughout.

3D6 has just moved to a new QRA much nearer to her old home, where her gear is still erected.

We are delighted to welcome 3BG, from Bendigo, as a new member of the super-enthusiastic type. He is in a key position there, and we can look to a future section being formed around that town.

SIXTH DISTRICT

Activity has livened up in West Australia, as a good roll call has been experienced for many weeks past. 6A6 has resumed watches, and 6A1 is being put through his elementary tutoring. 6B1 and 6A5 are as ever. 6A2 is seldom home for the week-ends now, whilst 6Z1 will be shortly moving to an extra fb QRA situated on top of a de-luxe hill. 6A2 is transferring to Northam, and by doing so will be placing another country district on the list of valuable locations for the R.A.A.F., and it appears as though the whole country will be linked up shortly. 6B1 and 5A2 are in contact thrice weekly for inter District traffic.

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PROMPT DELIVERIES

MAXWELL HOWDEN (VK3BQ) CONS. RADIO ENGR.

13 Balwyn Road, Canterbury, E.7.

(Continued from page 25)

VK7DH.—Got amongst the European DX the other Sunday. Good work Dave. Still trying to solve modulation worries.

VK7HM. — QRL annual meeting. Hopes to be on the air again soon when institute business is cleared up (You will never find the time!)

VK7KQ.—(ex 3KQ) Gil Miles hypnotized the Northern gang with tales of 5 mx and supported remarks by fine display of 5 mx gear.

VK7JB.—Hibernating to 80 mx for the winter. Runs skeds with the Mallee gang. 3WE, 3HX and 3ZK, QRL with technical college.

VK7LZ.—Heard on 5 mx fone after many months of cw work. He is using a condenser mike but is not satisfied with the quality.

VK7KR.—Very interested in 5mx at present. Hopes to get over to VIM with the stabilized osc described in ARRL hand book.

VK7RK.—Waiting for someone to donate a rx so as he can get on the air. Ask Henry, Ray.

VK7AB.—On 10mx with 35T in the final of xtal rig, and with KR and LZ, hope to work VIM on 5mx. (Don't we all).

VK7CL.—Recently visited VIM and brought back the 5mx bug also. Sorry you missed the dinner Merv.

VK7CK.—Will be installing a deisel engine and alternator if AC lines not forthcoming shortly.

The VK7 gang wish to extend to "Stripy James" the personality of Swan Hill, their pronounced sympathy and congratulations on his recent matrimonial plunge!!

(Continued from Page 3)

in the normal organisation of the Victorian Division, and although we have no figures of the other divisions their organisations are similar. Every one of those positions requires an earnest, enthusiastic fellow if progress is to be made, and every one of those men requires assistance if his sphere of work is to be successfully carried out. In fact, there is a job for every member if he will only accept the responsibility that is rightly his."

"That is alright from the WIA viewpoint, but how does it help me personally in my efforts to work along the right lines in Ham Radio?"

"That is easy," we went on, "by taking an active part in the running of the Institute you are continuously in touch with every phase of the Ham game. You are brought in closer touch with the finest Hams in your Division, and through your contact with the former and your frequent conversations with the latter, your activities become natural inclinations rather than befogged ramblings. You think it over, and decide to give your Division three months' earnest assistance. We'll guarantee your whole attitude will change as you start collecting the 'dividends' that were only awaiting the 'investment of capital.' The time is ripe, too, because within the next few weeks the new executives will be taking office for the coming twelve months."

(Continued from page 12)

2. Only one operator is permitted, and only one receiver can be used.

3. The dates, times, scoring of points, logging of stations, and bands used, for the duration of the contest are the same as for the transmitting contest.

NOTE.—Reception of 28 Mc stations will be permitted to count for once on a week-end, and not once only for the duration of the contest.

4. To score points the call sign of the station being called and the readability, strength and tone of the calling station, must be entered in the log, together with band, time, date. Logging of CQ on test calls will not count.

NOTE.—Overseas stations must be logged when either calling ZL or VK stations by Australian or New Zealand listeners. Overseas listening stations must log VK-ZL stations when they are calling overseas stations.

5. Australian and New Zealand stations will count their score as Rule No. 9 of transmitting contests.

6. Overseas listening stations will count their score as per Rule 10 of the transmitting contests.

7. Entries must be sent as per Rule No. 12 of the transmitting contests.

Hamads

Advertising space in these columns is available to those wishing to sell, buy or exchange, at 3d. per line; approximately five words to the line. Minimum charge, 1/-. To ensure insertion enclose postal note or stamps with copy, and address to the Advertising Manager, "Amateur Radio," White Horse Road, Box Hill, E.11., Victoria.

BRIGHT STAR RADIO, VK3UH, 517 Lower Malvern road, Glen Iris, S.E.6. Crystals ground from best Brazilian Quartz and tested to 50 watts input to penthode oscillator, as used by leading experimenters and DX Stations, accuracy plus or minus 3 KC's, 200, 160 metre, 15/-; 80 metre, 10/-; 40 metre, £1/5/-; 465 KC, xtal gates, £2; Plug-in type holders, 7/6 each. Power Transformers constructed to specifications. Filament transformers, up to six windings, 15/6. Receivers and Transmitters constructed. Super-Hets aligned. Triad first quality-866 Mercury Vapour Rectifiers, 7500 volts peak, £1/1/-. National Type, N dials, £2 each. Taylor T55 Triode Transmitting Tubes, 55 watts plate dissipation, 170 watts RF output on all frequencies up to 30 MC's. Price, £4/4/- each. All parts of meters repaired. Wanted — Small rotary converter, about 110 D.C. to 200 A.C. Call or write above address. Phone U1218. Satisfaction guaranteed.

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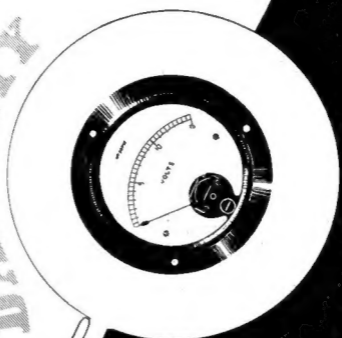
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